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United States Coast Guard

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7 JAN 2002

From: Commanding Officer, USCG Facilities Design And Construction Center (Atlantic)
To: Distribution

Subj: DESIGN GUIDE FOR STATION (SMALL)

Ref: (a) Shore Facilities Standards Manual, COMDTINST M11012.9, VOL 1

1. In our ongoing efforts to implement process improvements under the guidelines of SFCAM, we have developed a Design Guide for Station (Small). This manual is provided to assist planners and designers in developing design criteria for Station (small). This design guideline was developed in response to the Coast Guard's desire to standardize design specifications and square footage criteria for this relatively new facility type.

2. The manual explains the premise for the "Parent" command and Station (small) relationship. It provides basic guidelines for staffing of such facilities and basic assumptions for design. Design criteria support the reduced mission and personnel requirements.

3. The design guide is an FDCCLANT in-house tool that does not take precedence over formal guidance from Commandant but rather collects and organizes the many letters and manuals recently written on the topic.

4. If you have any questions or suggestions, please contact Mr. Donnie Coghlan (Director of Design) or CDR Stan Douglas (SFCAM Director) at the number above. The manual is also available on the FDCCLANT website at http://www.uscg.mil/mlclant/fdcclant under the SFCAM Division.

DALE WALKER

Encl: Station Small Design Guide

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STATION SMALL

DESIGN GUIDE

FACILITIES DESIGN AND CONSTRUCTION CENTER (ATLANTIC)

STATION SMALL DESIGN GUIDE

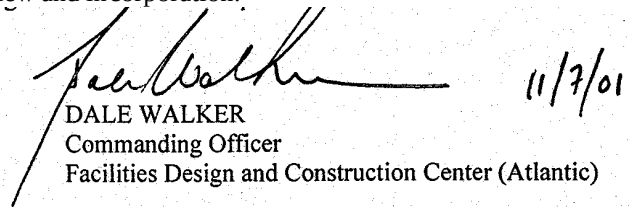
Foreword

This manual is provided to assist planners and designers in developing design criteria for Station (small). The design guideline was developed in response to the Coast Guard's desire to standardize design specifications and square footage criteria for this relatively new facility type. The information presented was based on lessons learned in the planning, design and construction of Station (small) Ashtabula, Ohio. Further guidance from Commandant given in response to the Ashtabula PPR(A) established baseline space allocation square footages and space layout requirements.

The manual explains the premise for the "Parent" command and Station (small) relationship. It gives basic guidelines for staffing of such facilities and basic assumptions for design. The design criteria is broken down by major space requirements and gives pertinent information about layout and space usage. The proposed change to the Shore Facility Standards Manual, submitted to HQ in November 2001, is enclosed to show the Space Allocation Listing. A set of basic floor plans and elevation is also enclosed for reference. And finally, the manual provides some valuable lessons learned and rules of thumb for designers.

The design guide is an in-house resource that does not take precedence over formal guidance from Commandant but rather collects and organizes the many letters and manuals recently written on the topic of Station (small).

Changes to this design guide will be forwarded to each recipient by separate cover. Suggestions for refinement and improvement of this guide will always be appreciated and considered. Please forward any suggestions to the Director of Design for review and incorporation.



11/7/01

DALE WALKER
Commanding Officer
Facilities Design and Construction Center (Atlantic)

STATION (small)
An In-house Design Guide

"Station (small) is a dedicated operational unit that does not perform administrative or support functions. Station (small) facility requirements should be limited to required operational spaces; additional spaces serve only to burden personnel with maintenance functions that they are not staffed to perform."[1]

"The driver in this design is to make the smallest facility possible so that the personnel on Station (small) do not have to spend excessive time in the maintenance of the facility"[2]

Users are usually assigned to Permanent Duty at a "Parent" Station and perform regular duties at the "Parent" Station plus serve as watchstanders at the Station (small). They may also augment the watchstanders at a Station (small) during normal working hours. The "Parent" Station provides administration and support functions. This document is a standard guide for a "pooled" Station (small). Un-pooled Stations (small) have personnel permanently assigned and, lacking a "Parent" station for support, may have additional space requirements. It is anticipated that some Stations (small) will be manned by the U. S. Coast Guard Auxiliary (AUXOP) or augmented by reservists (RESAUG) which could require other program requirements.

Station (small) is intended to accommodate one small- (usually non-standard) boat crew. Generally a small boat crew consists of three or four members. Boats of thirty feet or less in length require a maximum crew of four[3]: Coxswain (BM), Engineer (MK) and two line-handlers (usually SNs or FNs). The source of this information is the U. S. Coast Guard Station Operations Manual, COMDTINST M3100.6[3]. The crews stand watch from 24 to 48 hours at a time and they must be ready to get the smallboat underway within 30 minutes of the Search and Rescue (SAR) alarm. This is known as "BRAVO-ZERO" Status. The station may also have additional staff assigned during normal working hours. They may be assigned to smallboats as boarding officers, trainees, etc. or have other duties ashore, but will not remain at the Station (small) overnight.

Basic Design Criteria

Bedrooms

Personnel are generally assigned two to a bedroom, however, three bedrooms are required to male and female separation, and accommodate a crew of four. Bathrooms are provided ensuite. To date, the basic footprint of a station (small) is two bedrooms deep by two bedrooms long. Any additional area required is provided in a rear lean-to. Footprint size depends on vertical circulation and the treatment of SAR gear lockers. The sleeping area of each bedroom shall be at least 180 net square feet. Experience shows that excessively narrow rooms reduce the variety of furniture layout options. Dimensions approaching square are more flexible. The typical module width is 14', the exterior wall framing being 2"x6" and the "meeting wall" framing 2"x4" (overall thickness 8 ¼"). Each person should be provided with a bed, nightstand, single-door wardrobe, a desk and two-position desk-chair.

SAR Gear Storage

Refer to Wetrooms below; in proto-typing Station (small), both the First District and the Ninth requested that SAR gear storage be provided in the bedroom area(s), locate lockers in the bathroom so its ventilation system can control mildew. Lockers should be full metal mesh, 24" wide by 21" deep, provide a 4-6" base, include blocking in the base and wall for anchorage, these are available from Lyon Metal Products http://www.lyon-metal.com and are usually on GSA schedule, but procurement, assembly and installation by the contractor is preferable.

Laundry

A laundry area should be provided near the bedrooms. Provide space for a clothes washer, dryer, laundry tub and a closet for storing bed linens. This area may have to serve as a janitor closet if the programmed janitor closet is on another floor. Other shared use for this space could be for a weight-lifting machine.

Wetrooms and Wet Areas

Wetrooms are usually provided at the parent Station near the shop spaces. If shops and the wetrooms are in a separate structure, the wetroom provides toilet facilities for shop personnel. Wetrooms consist of a locker room with lockers for SAR gear storage, toilet, lavatory and shower. Additionally a place to clean SAR gear that cannot be washed by machine, and a place to dry it, should be available. The Parent Station should have a heavy-duty washer and dryer for cleaning heavily soiled work clothes, these machines will not be duplicated in the Station (small). As Stations (small) will not have heavy maintenance duties a separate Station shop building is not likely to be required. Its locker and toilet facilities can be accommodated in the bedrooms; provide a Wet Area ("mud-room") for cleaning SAR gear and a place to hang it to dry. If an activity requests wetrooms at their station (small) refer to the spaces proposed in

reference (1) to provide locker, shower, and toilet spaces; delete locker areas from bedrooms.

Multipurpose room
Multipurpose room is the Station (small) “family room”, used for TV watching in the evenings, reading, and training during the day; may also be used by the Auxiliary, visitors, and civilians awaiting the outcome of a SAR case so it must be on the “accessible route”.

Dining facility
The Kitchenette and Mess are used for light meal preparation by the watchstanders and is designed to residential standards as no cook (FS) is assigned. Other uses for this space include recreation and study. Commercial Off-the-Shelf (COTS) cabinetry has proven unsatisfactory in service. Specify AWA Economy Grade cabinets. Note you may have to provide the manufacturer with a list of AWA members in their area. http://www.awinet.org

Boatswains Storage
Boatswains Storage is provided only for spare parts and materials to perform light preventative maintenance and simple repairs (line, lubricants, spark plugs, touch-up paint etc.). Station-level maintenance and repair will be performed at the station. To meet the minimal requirements for the storage of flammable liquids in the Boatswain’s and Building and grounds storage areas, provide laboratory tested and labeled cabinets, e.g. UL^{tm}, 45-gallon capacity.

Building & Grounds Maintenance
Building & Grounds Maintenance storage is provided for lawn mowers, weed whackers, snow blowers, ladders, touch-up paints etc. all the usual homeowner’s inventory.

The Command Center
The Command Center/Officer of the Day (OOD) office provides a workspace for the radio watchstander, a clerical workstation with printer for filing SAR reports, facsimile, a STU III (secure telephone) and copier machines. Provide a pass-window to the lobby as this will be where visitors are received. A small windowless space is required adjacent and connected to the OOD office for the storage, issue, and cleaning of weapons. Obtain approval of the District Security Officer for the configuration and security features of this space. Coordinate requirements for intrusion alarms if any with MLCA(t) as they may be routed to a central monitoring station, the Parent station, or the Group.

Telecommunications
Telecommunications space must conform to the minimum requirements of the Federal Information Processing Standard (FIPS), this is the main distribution point for voice and data telephony, radio and computer systems. Detailed requirements ought to be in the Base Electronic Systems Engineering Plan (BESEP).

Code Compliance

This building type shall comply with the International One & Two Family Residential Building Code or, the International Building Code (occupancy R1 Boarding Houses (transient)) and the Life Safety Code, NFPA 101, Chapter 26, Lodging or Rooming Houses. The intended use of spaces listed in the SAL does not create a mixed occupancy. An NFPA 13D fire protection system will meet minimum requirements but if local water supply permits (adequate flow & pressure), an upgrade to an NFPA 13R system is strongly encouraged.

Planning

The Multi-Mission Design Guide COMDTINST M11012.3 (MMDG) was cancelled (but in no way replaced) by the Shore Facilities Standards Manual (SFSM), COMDTINST M11012.9 Vol.s 1 through 3. The MMDG remains the definitive overview for the basis of design for Coast Guard stations and is expected to be revised for re-issue[5] to include stations (small). Exceptions follow and there is a possibility that the narrative content of the Planning & Design sections of the Multi-Mission Design Guide may be stripped to fit the spare format of the SFSM, so hang on to your old copy.

Site Selection

Few station (smalls) are envisioned on newly acquired property. Most will share "legacy" sites with existing Coast Guard facilities that will be surplused to other governmental agencies or for public use. Siting a station (small) may often be constrained by the need to continue to use existing infrastructure such as smallboat berthing, refueling facilities, and the need to sever the legacy properties in the most efficient manner.

Site Context

Although most legacy sites have been stripped of their original architectural features in the name of simplified maintenance they remain historically significant to the community and possibly the State Historic Preservation Officer (SHPO) Be prepared to deal with both. Maintenance of existing views from the public way, massing, and exterior rendering become important. In proximity to or in Historic areas, follow the Secretary of the Interior Standards for Rehabilitation[6]. In areas designated as historic or special zones of a State or subdivision of a State, presentation of the design may be required to comply with Title 40 USC 619[7] requirements. Frequently a use agreement permitting the construction of a station (small) on non-Coast Guard property will have design requirements and/or restrictions included.

THE SPECIFICATIONS

This section assumes that the modular building is specified as “Special Construction” CSI/AIA Division 13:

Points to Consider:

- Design Drawings, requested of the contractor, are not likely to exceed your expectations.
- Building Framing: the “standard” is wood framing but Permanent In-combustible Modular as noted above should be seriously considered.
- Window specifications should identify true divided lights, applied muntins or between-the-glass muntins as the designer requires. Normal Coast Guard specs are considered “super-premium” by the modular industry. Ensure that the Coast Guard spec and the contractors submittal call for Grade 60 windows.
- Gypsum drywall should be 5/8” thick, several manufacturers are now producing a 5/8” board with toughened faces which deserve consideration. The inevitably narrow stairs and hallway walls will be susceptible to heavy wear and tear.
- Door Hardware: bored, cylindrical locks and latches, Grade two. Do not accept submittals for tubular locks and latches.
- Mechanical Systems should be appropriate to the residential scale of a Station (small). Ensure that local tradesmen, for maintenance and emergency repair, can support systems selected.
- Electrical service exceeding normal domestic requirements is not anticipated. Check that the BESEP includes, or rules-out, any Signal Grounding requirements of the communications equipment. Provide generous conduit capacity from the Telecommunications space to the crawlspace and attic, if provided, or the interstitial space between floors.

References:

1 G-SEC 11012 ltr dtd 15JAN99
2 W. Logan/G-SEC e-mail dtd 19APR01
3 COMDTINST M3100.6 http://isddc.dot.gov/OLPFiles/USCG/009662.pdf
4 COMDTINST M5530.1b Physical Security Program
5 http://cgweb.comdt.uscg.mil/g-sec/4/FacStand.htm
6 http://www2.cr.nps.gov/tps/tax/rhb/stand.htm
7 http://www4.law.cornell.edu/uscode/40/619.html
8 http://www.mbinet.org
9 an MLCA instruction on Design-Build is in draft

Cover Credit:
HTTP://WWW.LIGHTHOUSE.CC/COLCHESTER

INTRODUCTION

FACILITY: MULTI-MISSION STATION (small)

PROPERTY USE CODE: 143

SPACE NAME		SIZE(NET) sq. ft.		SPACE CODE	REFERENCE	
ADMINISTRATION & COMMAND				**610/140**		
COMMAND CENTER						
Standard Workstation III		60		610.082	(1-2)	
Communications Console (2 bay)		45		140.029	(8-1)	[4]
Chart table/file		40		610.104	[1-3]	
Lateral file		8		610.103	[1-3]	[4]
Weapons Storage Area & Admin. Supplie		45		140.016	(8-1)	[4]
Fax Machine		20		610.091	[1-3]	
Copier		20		610.150	[1-3]	
OiC/Supervisor Office		100		610.006	(1-1)	[4]
Administration/Command PNA			338			
BACHELOR HOUSING				**721**		
Bedrooms [1]	2 @ 256=	512		721.014	(2-2)	[4]
M/F Separation Bedroom		256		721.014		
Bachelor Housing PNA			768			
DINING & RECREATION				**722**		
Dining Area & Kitchenette [2]		184		722.024	(4-1)	
Multipurpose Room		184		900.080	(4-1)	
Dining & Recreation PNA			368			
LAND OPERATIONS				**140**		
Lockers (m&f) [3]		0		140.911	(8-4)	
Washdown / Toilets (m&f)		50		140.912	(8-4)	[4]
Laundry & Linen Closet		188		140.913	(10-3)	[5]
Land Operations PNA			238			
MAINTENANCE (BOATSWAINS STORAGE)				**213**		
Boat Maintenance Storage		80		213.408	(9c-1)	
Flammable Storage [3]		0		213.409	(9c-2)	
Hazardous Material Storage		0		213.???	[6]	
Maintenance PNA			80			

[1] Bedrooms include SAR gear locker space
[2] Kitchenette refrigerator provided with ice & water dispenser
[3] Space not provided or combined with other spaces eg.Lockers combined with Bedrooms and group Lockers omitted, Flammable Storage in approved cabinets combined with Maintenance & Bo's'n's Storage
[4] Indicates a needed change to referenced page of SFSM for Station (small) see p.11
[5] Add space as necessary to use full module, use space for Summer Stock gear or weight lifting machine
[6] Provided as movable pre-engineered outfitting item, not real property. Not currently listed in SFSM.

INTRODUCTION

FACILITY: MULTI-MISSION STATION (small)

PROPERTY USE CODE: 143

SPACE NAME	SIZE (net) sq. ft.		SPACE CODE	REFERENCE	
PERSONNEL SUPPORT					
Lobby/Vestibule			**900**		
Public/Staff Toilet	65		900.006	(10-1)	
Personnel Support PNA	50		900.025	(10-9)	
		115			
PARTIAL NET AREA (PNA) CALCULATION					
ADMINISTRATION					
BACHELOR HOUSING	338				
DINING/RECREATION	768				
LAND OPERATIONS	368				
MAINTENANCE (BO'S'N) STORAGE	238				
PERSONNEL SUPPORT	80				
Sub-Total PNA	115				
		1907			
FACILITY SUPPORT					
Mechanical			**800**		
Telephone/Communication	70		800.006	(6-11)	
Janitor & Cleaning supply storage	50		800.042	(6-17)	
Electric Water Cooler [2]	60		800.401	(6-4)	
Building & Grounds Maintenance Storage	0		800.051	(6-4)	
Facility Support PNA	80		219.430	(9D-1)	[4]
		260			
TOTAL NET					
	2167				
N/G Multiplier (1.21)					
VERTICAL CIRCULATION ADJUSTMENT	2624				
	226				
TOTAL GROSS					
	2850				

Notes:

[1] Bedrooms include SAR gear locker space

[2] Kitchenette refrigerator provided with ice & water dispenser

[3] Space not provided or combined with other spaces eg.Lockers combined with Bedrooms and Group Lockers omitted, Flammable Storage in approved cabinets combined with Maintenance & Bo's'n's Storage

[4] Indicates a needed change to referenced page of SFSM for Station (small) see p.11

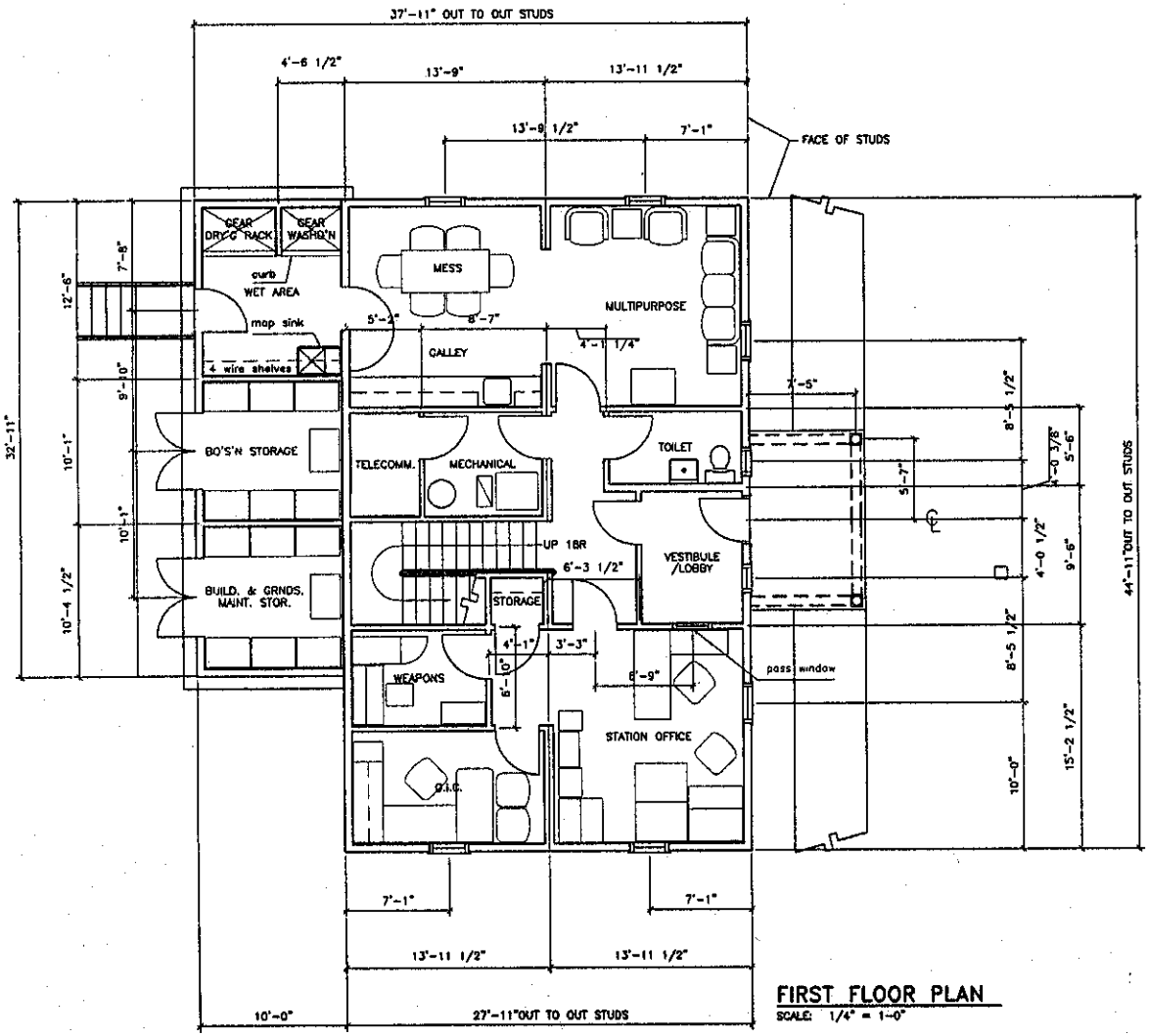
[5] Add space as necessary to use full module, use space for Summer Stock gear or weight lifting machine

[6] Provided as movable pre-engineered outfitting item, not real property. Not currently listed in SFSM.

NEEDED CHANGES TO COMDTINST M11012.9

PAGE/ REF TABLE		
8-1		
1-1	ADD WEAPONS STORAGE FOR STATIONS (small) & ADMIN. STORAGE	45 nsf
2-2	ADD OiC/SUPERVISOR OFFICE	100 nsf
4-1	ADD BEDROOMS WITH SAR-GEAR STORAGE FOR STATION (small)	256 nsf
4-1	ADD DINING AREA & KITCHENETTE FOR STATION (small)	184 nsf
8-4	ADD MULTIPURPOSE ROOM FOR STATION (small)	184 nsf
8-4	DELETE LOCKER AREA IF PROVIDED IN BEDROOMS	
10-3	ADD WASHDOWN & GEAR DRYING SPACE FOR STATION (small)	50nsf
9c-1	ADD SUFFICIENT SPACE TO LAUNDRY TO MAKE A FULL MODULE	see note [5]
9c-2	ADD STATION (small) BOAT STORAGE	80nsf
	DELETE FLAMMABLE STORAGE @ STATION (small),	
9d-1	USE LISTED 45 GAL. CABINETS	
	ADD BUILDING & GROUNDS MAINTENANCE STORAGE STATION (small)	80nsf

SAMPLE FLOOR PLANS & ELEVATION



FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

BUILDING AREA

FIRST FLOOR	1,560 GSF
SECOND FLOOR	1,260 GSF
TOTAL	2,820 GSF

CONSULTANTS

XX% SUBMITTAL xx/xx/xx

U. S. COAST GUARD
FACILITIES DESIGN & CONST CENTER ATLANTIC

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5505 ROBIN HOOD ROAD SUITE K
NORFOLK, VIRGINIA 23513-2413

ISSUE

MARK	DATE	DESCRIPTION

A/E PROJECT NO:
CAD FILE NAME: A017A101
DESIGNED BY: D. COFO
DRAWN BY: D.COFO
EDITED BY:
CHECKED BY:
SCALE: PLOT SCALE:
SHEET TITLE

STATION (small)
STATION FRANKFORT
FRANKFORT MICHIGAN

ARCHITECTURE
FIRST FLOOR PLAN

REVIEWED BY:	REVIEWED BY:	REVIEWED BY:
PROJECT ENG.	BRANCH CHIEF	CONTRACTING RO
APPROVING OFFICER		DATE

PROJECT NUMBER	DRAWING NUMBER
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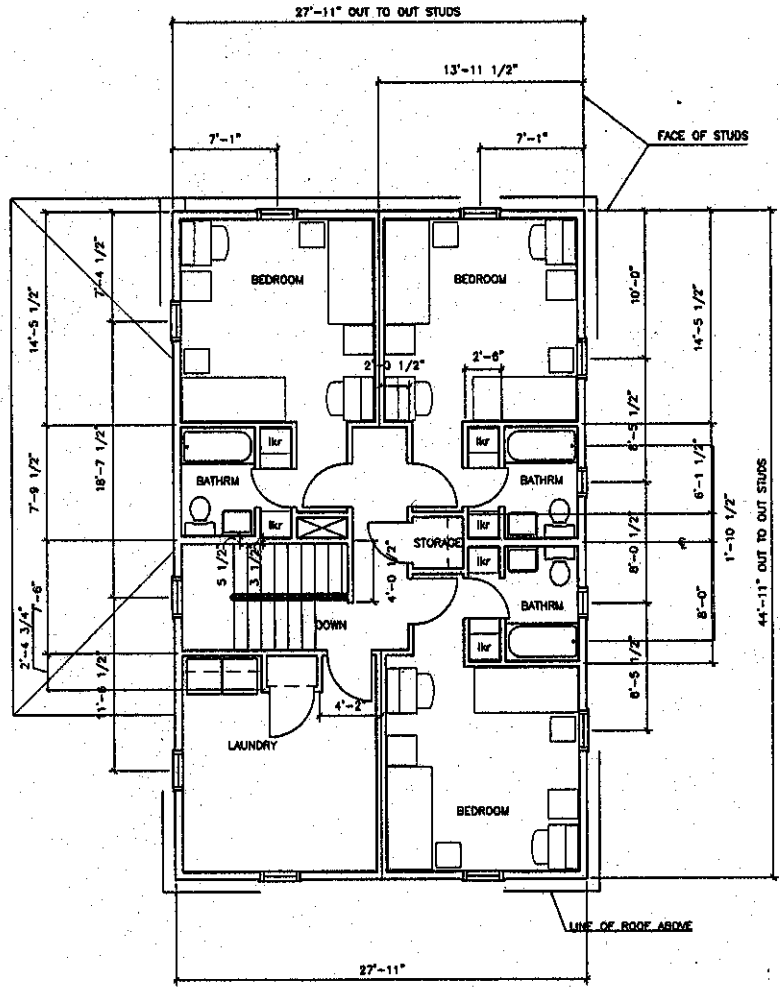
SAMPLE FLOOR PLANS & ELEVATION



SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"

CONSULTANTS

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XX/XX/XX

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FACILITIES DESIGN & CONST CENTER ATLANTIC

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MARK	DATE	DESCRIPTION

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DRAWN BY: D. COFO
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SCALE: PLOT SCALE

SHEET TITLE
STATION (small)
STATION FRANKFORT
FRANKFORT MICHIGAN
ARCHITECTURE
SECOND FLOOR PLAN

REVIEWED BY:	REVIEWED BY:	REVIEWED BY:
PROJECT ENG.	BRANCH CHIEF	CONTRACTING OFFICER
APPROVING OFFICER		DATE

PROJECT NUMBER	DRAWING NUMBER
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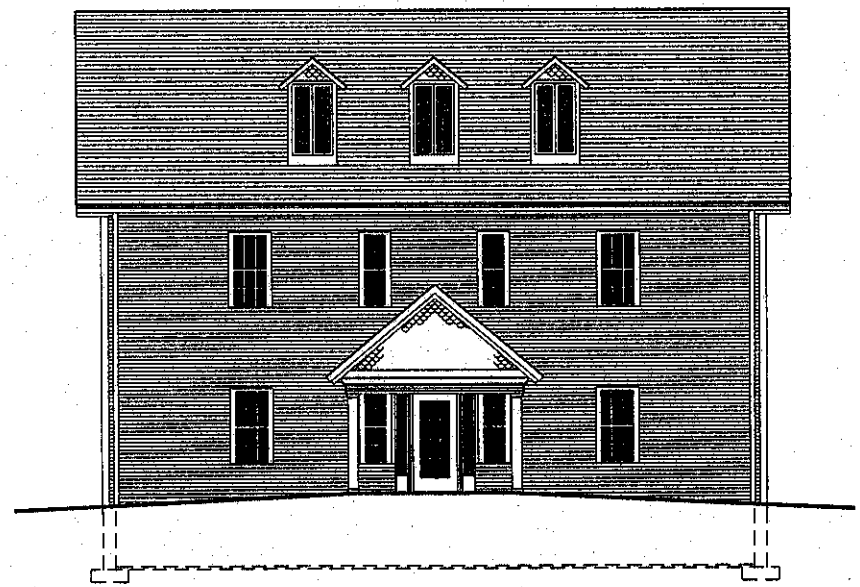
SAMPLE FLOOR PLANS & ELEVATION



MAIN ELEVATION
SCALE: 1/4" = 1'-0"

XX% SUBMITTAL
xx/xx/xx

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FACILITIES DESIGN & CONST. CENTER ATLANTIC

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ISSUE

MARK	DATE	DESCRIPTION

A/E PROJECT NO:
CAD FILE NAME:
DESIGNED BY: G. COFO
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SCALE: PLOT SCALE:
SHEET TITLE

STATION (small)
STATION FRANKFORT
FRANKFORT MICHIGAN

REVIEWED BY: PROJECT ENG.	REVIEWED BY: BRANCH CHIEF	REVIEWED BY: CONTRACTING RO

APPROVING OFFICER DATE

PROJECT NUMBER	DRAWING NUMBER
09-X2554	A017

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THE NUTS & THE BOLTS & THE LESSONS LEARNED

Overview

The Station (small) concept is based on the use of factory-constructed modules but nothing precludes conventional on-site construction. Permanent Modular construction is very new to the Coast Guard and seems to have pitfalls equal to its advantages:

1) The Contractor's quotation of "Industry Standard" is a red flag. Avoid leaving any essential items to default to "Industry Standard".
2) The industry is not used to professional, non-residential, specifications.
3) The industry is not used to the shop drawing and submittal process and the Coast Guard is not used to the speed of modular construction in turning submittals around.
4) Dealers often pose and promise as manufacturers then shop the project around to the real builders. Check that prospective suppliers are manufacturers with the Modular Building Institute[8].

Consider specifying steel-frame construction with concrete floors to weed out less capable manufacturers. In the industry this is termed Permanent In-combustible Modular.

If limited government resources prevent the production of detailed Contract Documents a Design-Build procurement[9] is recommended, else Contract Documents must be as detailed and thorough as for conventional construction.

Exterior Materials

All exterior materials exposed to weather must be intrinsically low maintenance. In addition to metal roofing and vinyl siding consider Hardi-Plank^{tm} for siding, 30-year shingles and synthetic wood products such as Fypon^{tm} for trim. (Aluminum-wrapped wood trim deteriorates at joints due to differential movement of the dissimilar materials).

Interior Materials

Interior materials and finishes should be renewable with basic homeowner skills or else indestructible. Tight spaces are inevitable in a station (small), this generation of enlisted members are larger, and once equipped with the tools and weapons necessary for deployment, frequently scuff-up stairway and corridor walls.

Foundations

Double-wides and sectionals are often founded on CMU piers with augered hold-downs to resist wind uplift. Modular construction used for more permanent structures, is usually provided with a basement or crawlspace with a full, structural perimeter foundation wall. Foundations in cold climates (frost depth $\geq$24") shall be poured in place concrete, damp- or waterproofed and insulated. Provide foundation drains at the footing level. Protect from fines with filter cloth. Do not allow backfill with excavated material directly over drains, use imported porous gravel to 18" above the drain invert level.

Site Planning

The station must provide an accessible route on the site from the handicapped visitor parking area to the main entrance. If sidewalk slopes are kept to less than 1 in 20 and shoulders graded to minimize drop-off there is no need to provide a handicapped ramp with railings etc. this will clean up the appearance of the building, simplify snow removal and maintenance such as repainting. Locating visitor parking on the high ground relative to the building entrance reduces slope requirements.

Consider snow removal; provide areas to stockpile snow without interfering with site circulation. Wheel-stops in parking areas hinder snow removal.

In cold climates provide receptacles for block heaters, six for staff plus the stalls assigned for Government vehicles.

Provide weatherproof convenience receptacles at front and rear of building to support outdoor activities.

If you design and build a station (small) and have a lesson learned from the experience please e-mail it to dcofo@fdcclant.uscg.mil.